A201 - Test and Evaluation Master Plan Coversheet

System:	***Item Number:*** A201
Title: Test and Evaluation Master Plan	
RFP Reference: Section VI Part 3, Q.1	
Date of Submission: • Ten (10) days prior to the end of the Development Phase • Updates as needed	
Distribution: • CDCR: 1 copy along with a magnetic media containing MS Office format copy • V&V: 1 copy along with a magnetic media containing MS Office format copy.	
Approval: CDCR written approval is required.	
Comment: Change pages may be delivered upon approval of changes to the requirements until the cumulative total number of change pages reaches 10% of the final submission, upon which the entire document shall be re-issued.	
Preparation Instructions: The Contractor shall provide this document according to the standards defined in the documentation plan. The deliverable(s) shall include at a minimum the contents of the template in and/or following this coversheet, or equivalent as determined by the Project Director or designee. Providing less information than required in the template or any exceptions shall not be allowed unless advance written permission is obtained from the Project Director or designee.	

Test and Evaluation Master Plan Template

The Test and Evaluation Master Plan (TEMP) provides the overall guidance on how a project will conduct all tests. The TEMP outlines the project's testing strategy, and it documents the overall structure and objectives of the testing effort. It provides a framework for generating detailed test plans, and documents an estimate of schedule and resources for the entire test effort. From the TEMP, all other test plans and procedures shall be developed, to include the Unit Test Plan and Procedures, Integration Test Plan and Procedures, System Test Plan and Procedures, the User Acceptance Test Plan and Procedures, and the Performance Benchmark Test Plan and Procedures. The TEMP identifies what testing will be formally conducted on the project, how it will be tested, who is involved in the testing, how the results will be evaluated, the review and approval process, the baseline test schedule, and what resources are required, and it provides templates for the development of the test plans and procedures. Once developed, all parties involved in the testing effort, including project management, sign the TEMP. The TEMP is periodically updated to incorporate final test plans and procedures, and to adjust for any other unforeseen event.

1.0 INTRODUCTION

1.1 Scope

Describe the purpose of the system to which the plan applies. Summarize the content of the plan and how its configuration will be managed.

1.2 Purpose

Provide a brief discussion of the need for the TEMP on this project.

2.0 REFERENCES

2.1 Compliance Documents

List all State, Departmental, and any other mandated directives, policies, and manuals being used for testing and evaluation planning.

2.2 Other Documents

List any supporting documents that are relevant to testing and evaluation planning.

3.0 ROLES AND RESPONSIBILITIES

Describe each project team member and stakeholder involved in test and evaluation planning, and indicate their associated responsibilities for ensuring the project test plans are followed.

4.0 TEST STRATEGY

The following sub-sections define what levels of testing will be established and controlled in accordance with the project requirements. The levels of testing controlled will be based on several factors such as size, complexity, cost, and risk and is unique for every project. Examples of the levels include but are not limited to unit testing, integration testing, system testing, performance benchmark testing, and user acceptance testing. The testing shall include both implicit and explicit

requirements. Once the levels of testing are determined, the strategy for each level of testing is developed. Examples include: functional ("black box") testing, structural ("white box") testing, and statistical testing. Finally, the coverage of the testing effort will be determined to ensure the testing effort covers the required areas. Examples of test coverage include: requirements coverage, statement coverage, path coverage, branch coverage, and usage profile.

4.1 Unit Testing

Unit testing involves testing of the smallest design and build units, such as a software library unit, package, hardware circuit board, etc. Unit testing may or may not be controlled at the project level. However, unit testing must occur for the project. This section must identify if unit testing is going to be controlled on the project and what those control procedures are, if controlled. This section must also define the test methodology for conducting unit test, whether it is controlled or not. If unit testing is not controlled, the definition of the test methodology serves as a recommended approach for the testers to conduct unit testing. The test methodology must define both the testing strategy, "black-box," "white-box," statistical, as well as the coverage approach. For unit testing the coverage approach typically includes statement coverage, path coverage, branch coverage, data type verification, etc. This section must also define the source of the test requirements, such as the Detailed Design Document as the unit must match the requirements defined in the Detailed Design Document.

4.2 Integration Testing

Integration testing occurs at when the system is put together. Like unit testing, integration testing may or may not be controlled by the project. This section must identify if integration testing is going to be controlled by the project and what those control procedures are, if controlled. This section must also define the testing methodology that will be used for integration testing. Integration testing is unique in that the requirements for evaluating the functionality of an integrated group of hardware and/or software and/or system interfaces may not be well defined. The definition of the integration testing methodology must not only cover the testing strategy and the coverage approach, it must also address how the integration test requirements will be identified. Typically, integration test requirements are contained within the build procedures. The coverage approach for integration testing typically focuses on the interfaces between the integrated units to ensure data can flow across the interfaces. If functionality can be assessed, then that may be included too.

4.3 System Testing

System testing is almost always controlled by the project and is normally reflected as a key milestone on the project's master schedule. This section must define the control procedures required for system testing. Also, the system testing methodology must be defined to include strategy and coverage. Coverage for system testing typically includes functional, operational, and if possible maintenance coverage as well as system interface coverage. This section must also define the source of the test requirements, such as the System Requirements Specification as the system must support the requirement defined in the System Requirements Specification.

4.4 Performance Benchmark Testing

Performance Benchmark Testing determines whether or not a system can adequately and efficiently handle the volume of data expected to be maintained and processed by the system. It also tests the response times achieved with each transaction. This section must describe the Performance Benchmark testing, its control procedures, and the testing methodology proposed, to include strategy and coverage. This section should also define how the Performan Benchmark testing integrates with the other standard testing, and must define the source of the test requirements, such as the System Requirements Specification.

4.5 User Acceptance Testing

User Acceptance testing marks the end of the testing activities and is conducted to determine whether or not the system meets the customer's expectations as documented in the System Requirements Specification. This section must describe the control procedures for user acceptance testing as well as the strategy and coverage approach. The strategy normally used for user acceptance testing is "black-box" to ensure that no potentially intrusive influences are injected into the system. The requirements for user acceptance and coverage approach for user acceptance testing are unique. Requirements for user acceptance testing come from the user and must address the current business needs for the system. The coverage approach for user acceptance testing is typically fragmented since the user is driving what the test cases are. This section must document how the project is going to conduct user acceptance testing, including how the requirements for approval by the users will be developed.

5.0 TEST METHODS

Select methods for testing for each level. Examples of testing methods are simulation, modeling, functional, architectural, top-down, bottom-up, demonstration, inspection, hardware/software-in-the-loop, and analysis. Establish the test readiness criteria for each level of testing. Examples of test readiness criteria include: software units have successfully completed a code peer review and unit testing before they enter integration testing; the software has successfully completed integration testing before it enters system testing; and a Test Readiness Review is held before the software enters user acceptance testing.

5.1 Unit Testing

Describe the test method and the readiness criteria that will be used for unit testing.

5.2 Integration Testing

Describe the test method and the readiness criteria that will be used for integration testing.

5.3 System Testing

Describe the test method and the readiness criteria that will be used for system testing.

5.4 Performance Benchmark Testing

Describe the test method and the readiness criteria that will be used for performance benchmark testing.

5.5 User Acceptance Testing

Describe the test method and the readiness criteria that will be used for user acceptance testing.

6.0 EVALUATION CRITERIA

Define the approach that will be used in establishing the criteria for evaluating the test results. Test results may include simple Boolean pass/fail results or they may include data that may vary in range. This section must define how the test criteria should be established to ensure consistence between the various testers developing the criteria.

7.0 REVIEW AND APPROVAL PROCESS

Identify the process for the review and approval of test outputs and test hold and continuation for each controlled level of test. As test results are generated, define the process to review the outputs for correctness and errors. The review and approval process will include criteria and approval levels to halt and/or resume the testing efforts in the event of a deviation, discrepancy, or unexpected result.

7.1 Unit Testing

Describe the review and approval process for unit testing. Include a description on how the results will be evaluated against established criteria. Also, define the requirements to halt testing and what is required to resume testing.

7.2 Integration Testing

Describe the review and approval process for integration testing. Include a description on how the results will be evaluated against established criteria. Also, define the requirements to halt testing and what is required to resume testing.

7.3 System Testing

Describe the review and approval process for system testing. Include a description on how the results will be evaluated against established criteria. Also, define the requirements to halt testing and what is required to resume testing.

7.4 Performance Benchmark Testing

Describe the review and approval process for performance benchmark testing. Include a description on how the results will be evaluated against established criteria. Also, define the requirements to halt testing and what is required to resume testing.

7.5 User Acceptance Testing

Describe the review and approval process for user acceptance testing. Include a description on how the results will be evaluated against established criteria. Also, define the requirements to halt testing and what is required to resume testing.

8.0 TEST RESOURCES

Identify the resources for each level of test. The resources need to be defined in terms of type, quantity, skill-level, and schedule availability required to support each test activity.

8.1 Unit Testing

Identify the resources required to accomplish unit testing.

8.2 Integration Testing

Identify the resources required to accomplish integration testing.

8.3 System Testing

Identify the resources required to accomplish system testing.

8.4 Performance Benchmark Testing

Identify the resources required to accomplish performance benchmark testing.

8.5 User Acceptance Testing

Identify the resources required to accomplish user acceptance testing.

9.0 TEST ENVIRONMENT

Specify the needed properties of the environment where the testing will occur. Identify the physical characteristics and configurations of the needed hardware. Identify the communications and system software needed to support the testing. Describe the level of security needed for the test facilities, system software, and proprietary components such as software, data, and hardware. Specify any other requirements such as unique facility needs or special test tools.

10.0 TEST MASTER SCHEDULE

Develop a Master Test Schedule for the project reflecting proposed tests and major testing activities performed throughout the project life cycle. The Master Test Schedule should be kept at a high-level, and detailed schedules for the various tests should be developed within each of the test plans (i.e. unit, integration, system, user acceptance, etc). Major milestones on the Master Test Schedule should be reflected on the Master Project Schedule, such as the Test Readiness Review and the system and user acceptance test completion.

11.0 TEST GUIDES AND TEMPLATES

Develop guides for planning the different levels of tests. Test plans for unit testing, integration testing, system testing, performance benchmark testing, and user acceptance testing shall be included in this document. Test Plans should be designed to accomplish specific objectives, define responsibilities, schedules and resource requirements. Test Procedures should provide the detailed direction, steps, of setting up the test environment, test inputs, test data collection, test article identification, and

all the necessary steps to accomplish the testing. The test plan templates shall be developed for each identified level of test and shall include the following information:

11.1 Test Plan Scope

Identify the system and the requirements to be tested. Describe the features of the system which are the object of the test. Specify the major activities, techniques, and tools to be used.

11.2 Purpose

Provide a brief discussion on the need for conducting this specific test for this project.

11.3 Roles and Responsibilities

Describe each project team member and stakeholder involved in the test, and identify their associated responsibilities for ensuring the test is executed appropriately.

11.4 Test Items

Specifically identify the items to be tested, including their configuration number and version number. Explain how the items will be provided for testing, and indicate what media will be used for their transmission.

11.5 Features to be Tested

Identify all software features and combination of features that will be tested. Identify the test-design specification for each feature.

11.6 Features Not to be Tested

Identify any software features that will not be tested. Explain the purpose of not testing that item.

11.7 Approach

Based on the high level approach defined in the Test and Master Evaluation Plan, describe the approach that will be used for testing. This refined approach should be specific and identify each item and how it will be tested. The approach should be described in sufficient detail to permit identification of the major testing tasks and be able to support the estimation of time required to complete each. Specify the major activities, techniques, and tools that will be used to test each item and requirement. Identify if there are any testing constraints on the approach. Define how the requirements and test cases will be traced.

11.8 Item Pass/Fail Criteria

Specify the criteria to be used to determine whether each test item has passed or failed.

11.9 Suspension Criteria

Specify the criteria used to suspend all or a portion of the testing activities. Specify the testing activities that must be repeated when testing is resumed and how they must restart.

11.10 Test Deliverables

Identify all deliverables that will result from the test. Deliverables shall include, but not be limited to, test procedures, cases and results, test logs, and the summary test report.

11.11 Testing Tasks

Identify all tasks necessary to prepare for the test. Explain any inter-task dependencies.

11.12 Environment Needs

Identify the characteristics and configurations of the hardware required to execute the test case, if appropriate. Identify the system and application software required to execute the test case, if appropriate. Specify any other requirements such as unique facility needs.

11.13 Staffing and Training Needs

Specify the staffing needs by skill level. Identify training requirements and options for providing the necessary skills.

11.14 Schedule

Based on the schedule provided in the Test and Master Evaluation Plan, provide a detailed schedule for the activities required for this specific test. Estimate the time required to complete each testing task.

11.15 Risks and Contingencies

Identify any risks that may impact each test. Specify the contingency plan for each risk.

11.16 Approvals

Identify the names and titles of all persons who much approve the plan. Include space for signatures and the date.

APPENDICES A-X?

Label appendices alphabetically. Appendices may be used to contain referenced information or information which might otherwise have rendered the document less readable if placed in the main body. Appendices may also be used for information that needs to be bound separately for security reasons. The contractor should use as many appendices as is reasonable and makes sense for the deliverable.